Remarks:

The amendments and remarks presented herein are believed to be fully responsive to the Office Action dated October 5, 2009.

Claims 1-21 and 23-28 are pending in the application. Claim 1 has been amended to incorporate the layer wide repeating step of claim 22, which claim has now been cancelled. The amendments are fully supported in the specification and drawings as originally filed. No new matter has been added.

CLAIM REJECTIONS

Claims 1-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Great Britain Patent GB 790,672 in view of International Patent Application publication WO 00/01463, U.S. Patent No. 7,112,237 to Zeller et al., U.S. Patent No. 5,679,248 to Blaney, and the Kriegsmann et al. publication.

Claims 1-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 6,214,078 to Way, in view of International Patent Application publication WO 00/01463, U.S. Patent No. 7,112,237 to Zeller et al., U.S. Patent No. 5,679,248 to Blaney, and the Kriegsmann et al. publication.

Applicants respectfully traverse. "Obviousness requires a suggestion of all the elements in a claim (*CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003)) and 'a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.' *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007)." *Ex Parte Alexander*, 86 U.S.P.Q.2d 1120, 1122 (Bd. Pat. App. & Int. 2007) (parallel citations omitted).

The teaching or suggestion to make the claim combination and reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). *See* MPEP § 2143. "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of

the prior art so that the claimed invention is rendered obvious. This court has previously stated that '[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.'" *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992), quoting *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Additionally, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Where the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (C.C.P.A. 1959).

Claim 1 has been amended in the present response to incorporate dependent claim 22, with dependent claim 22 now cancelled. Among other distinguishing features, none of the cited references disclose or suggest a method including layer-wide repeating of selecting first and second ceramic powders, mixing of the first and second ceramic powders, shaping, and heating and conditioning of the molded body with ever decreasing mean grain sizes in a method of production of a porous ceramic body such that a gradient with regard to the mean grain size is created transverse to the layers in the ceramic body.

The Office Action acknowledges that neither GB 790,762 nor Way et al. teach or disclose several layers being formed or the use of first and second ceramic powders comprising α-SiC, but contends that it would have been obvious to one of ordinary skill in the art to incorporate the multilayer structure suggested by Blaney or Zeller into the method of GB 790,672 or Way et al. (¶3, pg.4; ¶4, pgs.5-6; ¶5, pgs.7-8; ¶6, pg.9). However, none of Blaney, Zeller et al., GB 790,672 or Way et al. disclose or suggest a method including layer-wide repeating of first and second ceramic powders with ever decreasing mean grain sizes that are heated and conditioned such that through recrystallization the grains with the second grain size are dissolved and the ceramic grains are firmly linked to each other.

The method in Blaney for producing coextruded blocks, and the blocks themselves, does not disclose or suggest the inventive method of claim 1, either alone or in combination with any other references. Blaney discloses that each block is formed of a granular component and a thermoplastic binder component, typically a polymer, defined to be capable of softening and flowing when heated and of hardening again when cooled. ('248 Blaney, col.1,l.29-col.2,l.3; col.3,ll.9-12). The coextruded blocks are formed by extrusion through an extruder barrel into or through a die, with the mixture heated to a temperature that is great than the softening temperature of the thermoplastic binder and less than the softening temperature of the granules. ('248 Blaney, col.5, ll.34-48; col.6, ll.11-14 and 47-50; col.7, ll.9-11 and 34-41). In addition to not disclosing or suggesting the inventive method of claim 1, the method of Blaney teaches away from the inventive method of claim 1 in that Blaney operates at a temperature that is less than the softening temperature of the granules. The patents incorporated by reference in Blaney (see '248 Blaney, col.5, ll.34-37) regarding the method of extruding a mixture of particles and a thermoplastic binder to make a porous block reveal this temperature to only be 360-400 degrees Fahrenheit (see U.S. Pat. No. 5,331,037 to Koslow, col.3, ll.59-65), which is far below the heating and conditioning temperatures of claim 1.

Likewise, the method in Zeller et al. for producing porous sintered composite materials, and the material itself, does not disclose or suggest the inventive method of claim 1, either alone or in combination with any other references. Zeller et al. discloses a material that includes a porous base material and a layer of porous sintered nanoparticle material composed of metal or metal alloys, where the nanoparticle materials form a layer on one or more surfaces of the porous base and penetrate only a portion of the porous base. ('237 Zeller et al., col.8, ll.28-32; col.9, ll.16-26). Thus, the composite material is only made of two materials, the smaller of which is located only on surfaces and is not dissolved in the material, as understood from Fig. 3 illustrating a cross section of the sintered composite material. Moreover, the materials are disclosed as being sintered at temperatures between 525 to 560 degrees Celsius (see Examples 1-

3, '237 Zeller et al., cols.18-20), which is far below the heating and conditioning temperatures of claim 1.

A person of ordinary skill in the art having access to Blaney, Zeller et al., GB 790,672 and Way et al., or any other art of record, would not be led to a method of producing a porous ceramic body including layer-wide repeating of first and second ceramic powders with ever decreasing mean grain sizes that are heated and conditioned such that through recrystallization the grains with the second grain size are dissolved and the ceramic grains are firmly linked to each other such that a gradient with regard to the mean grain size is created transverse to the layers in the ceramic body. Contrary positions are only reached by improper hindsight reconstruction utilizing the method of the present invention as a template.

Claim 9 specifies that the shaping of the molded body proceeds on a substrate and claim 25, which depends from claim 9, specifies that the substrate comprises a porous ceramic body of the same material, and wherein shaping of the molded body proceeds in pore channels of the substrate. None of the prior art of record, either alone or in combination with any other art, suggest or disclose shaping of the molded body on a substrate, or a substrate comprising a porous ceramic body of the same material.

Accordingly, Applicants respectfully submit that it would not be obvious to modify the cited references of GB 790,672 or Way et al., in view of WO 00/01463, Zeller et al., Blaney, and Kriegsmann as indicated in the Office Action, and that the method of claims 1-13 and 23-25 are patentably distinguishable there over.

Claim 14 describes a porous ceramic body formed of at least one layer on a coarse-porous support, with the at least one layer of the ceramic body being made by the claimed method. Claim 26, which depends from claim 14, specifies that the layers on the coarse-porous support are present in pore channels of the coarse-porous support. None of the prior art of record, either alone or in combination with any other art, suggest or disclose a porous ceramic body formed of the claimed at least one layer on a coarse-porous support, or that the layers are present on pore channels of the coarse-porous support.

Accordingly, Applicants respectfully submit that it would not be obvious to modify the cited references of GB 790,672 or Way et al., in view of WO 00/01463, Zeller et al., Blaney, and Kriegsmann as indicated in the Office Action, and that claims 14-18, 26 and 27 are patentably distinguishable there over.

Claim 19 describes a cross-flow membrane filter comprising a ceramic body on a SiC coarse-porous support, with the ceramic body including at least one layer formed by the claimed method. None of the prior art of record, either alone or in combination with any other art, suggest or disclose a cross-flow membrane filter comprising a ceramic body on a SiC coarse-porous support.

Claims 20 and 28 specify flow rate parameters. The Office Action acknowledges that neither GB 790,762 nor Way et al. teach the recited flow, but takes the position that they would inherently exhibit the recited flow. Both GB 790,762 and Way et al., however, disclose utilizing higher recrystallization temperatures as compared to claim 19, with Way et al. disclosing recrystallization temperatures greater 2300 degrees Celsius ('078 Way, Fig.1 and col.3,ll.56-59) and GB 790,672 disclosing recrystallization at between 2100 and 2450 degrees Celsius (see GB 790,672 claim 1). These higher recrystallization temperatures lead to a structure with large grain growth and at the same time lead to the formation of undesirable large pores by material rearrangement with no change in volume, such as illustrated in Figure 2 of Way et al. Thus, due to the large grain growth and large pores, the recited flow cannot be considered inherent. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993); MPEP §2112(IV).

Accordingly, Applicants respectfully submit that it would not be obvious to modify the cited references of GB 790,672 or Way et al., in view of WO 00/01463, Zeller et al., Blaney, and Kriegsmann as indicated in the Office Action, and that claims 19-21 are patentably distinguishable there over.

In light of the above amendment and remarks, Applicants respectfully submit that the application is now in condition for allowance and solicits a Notice to that effect.

Should the Examiner have any questions or suggestions, he is invited to contact the undersigned at (616) 975-5500 or at ondersma@vglb.com.

Respectfully submitted,

PER STOBBE and UDO HACK

By: Van Dyke, Gardner, Linn & Burkhart, LLP

Date: January 5, 2010.

Karl T. Ondersma
Registration No. 55 894
2851 Charlevoix Drive, S.E., Suite 207
P.O. Box 888695
Grand Rapids, Michigan 49588-8695
(616) 975-5500

KTO:wen